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MRID No. 444577-80

DATA EVALUATION RECORD
AQUATIC PLANT EC_{50} TEST
GUIDELINE 123-2 (TIER II)

1. **CHEMICAL:** Prohexadione calcium — PC Code No.: 112600

2. **TEST MATERIAL:** BAS 125 W — Purity: 90.6%

3. **CITATION:**

Authors:	S.G. Thompson, J.P. Swigert, D.W. Haughey, and J. Qiu
Title:	BAS 125 W: A 14-Day Toxicity Test with Duckweed (*Lemna gibba* G3)
Study Completion Date:	January 23, 1997
Laboratory:	Wildlife International Ltd., Easton, MD
Sponsor:	BASF Corporation, Research Triangle Park, NC
Laboratory Report ID:	147A-141
DP Barcode:	D245631
MRID No.:	444577-80

4. **REVIEWED BY:** Mark A. Mossler, M.S., Toxicologist, Golder Associates Inc.
Signature: **Date:**

APPROVED BY: Pim Kosalwat, Ph.D., Senior Scientist, Golder Associates Inc.
Signature: **Date:**

5. **APPROVED BY:** Brian Montague, Fisheries Biologist
Signature: Brian Montague **Date:** 7/13/99

6. **STUDY PARAMETERS:**
Definitive Test Duration: 14 days
Type of Concentrations: Mean measured

7. **CONCLUSIONS:** This study is scientifically sound and fulfills the guideline requirements for an aquatic plant toxicity test.

Results Synopsis:
EC_{50}: >1.2 mg ai/L — 95% C.I.: N/A
NOEC: 0.12 mg ai/L — Probit Slope: N/A

8. **ADEQUACY OF THE STUDY:**
A. Classification: Core
B. Rationale: N/A

C. Repairability: N/A

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4. **REVIEWED BY:** Mark A. Mossler, M.S., Toxicologist, Golder Associates Inc.

Signature: [signature] **Date:** 7/1/98

APPROVED BY: Pim Kosalwat, Ph.D., Senior Scientist, Golder Associates Inc.

Signature: P. Kosalwat **Date:** 7/1/98

5. **APPROVED BY:**

Signature: [signature] **Date:** 10/20/98

6. **STUDY PARAMETERS:**

Definitive Test Duration: 14 days
Type of Concentrations: Mean measured

7. **CONCLUSIONS:** This study is scientifically sound and fulfills the guideline requirements for an aquatic plant toxicity test.

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EC_{50}:	>1.2 mg ai/L	95% C.I.:	N/A
NOEC:	0.12 mg ai/L	Probit Slope:	N/A

8. **ADEQUACY OF THE STUDY:**

   A. Classification: Core

   B. Rationale: N/A

   C. Repairability: N/A

9. **GUIDELINE DEVIATIONS:** The initial pH of the culture medium (8.0-8.1) was greater than recommended (5.0).

10. **SUBMISSION PURPOSE:**

11. **MATERIALS AND METHODS:**

   A. Test Organisms

Guideline Criteria	Reported Information
Species *Lemna gibba*	*Lemna gibba*
Number of Plants/Fronds 5 plants, 3 fronds each	15 fronds/replicate
Nutrients Standard formula, e.g. 20XAAP	20X freshwater algal medium

   B. Test System

Guideline Criteria	Reported Information
Solvent	none
Temperature 25°C	24.0-24.8°C
Light Intensity 5.0 KLux (±15%)	4.3-5.3 KLux
Photoperiod Continuous	Continuous
Test System Static or Renewal	Renewal at 7 days
pH Approx. 5.0	Initial: 8.0-8.1 Final: 8.6-9.6

C. **Test Design**

Guideline Criteria	Reported Information
Dose range 2X or 3X progression	2X
Doses at least 5	0.075, 0.15 , 0.30, 0.60, and 1.2 mg active ingredient (ai)/L
Controls negative and/or solvent	Negative control group
Replicates per dose 3 or more	3
Duration of test 14 days	14 days
Daily observations were made?	Counts and observations made every three days
Method of Observations	Number of plants/fronds, chlorosis, and necrosis
Maximum Labeled Rate	1.67 lb ai/A

12. **REPORTED RESULTS:**

Guideline Criteria	Reported Information
Initial and 14 day frond numbers were measured?	Yes
Control frond at 14 days ≥2X initial count?	Yes
Initial chemical concentrations measured? (Optional)	Samples collected from new solutions on days 0 and 7 and from old solutions on days 7 and 14 were analyzed by HPLC
Raw data included?	Yes

Dose Response

Mean measured concentration (mg ai/L)	Avg. Frond Number	% Inhibition	14-day pH
Control	861	N/A	9.5
0.074	835	3	9.6
0.12	806	6	9.5
0.29	728	15	9.5
0.57	714	17	9.5
1.2	588	32	9.3

Other Significant Results: Necrosis was noted in the control and treatment groups. However, no dose-responsive patterns were noted. Significant chlorosis was detected in the 1.2 mg ai/L treatment group.

Statistical Results:

Statistical Method: Dunnett's test was used to determine the NOEC

EC_{50}: >1.2 mg ai/L 95% C.I.: N/A
Probit Slope: N/A NOEC: 0.12 mg ai/L

13. **VERIFICATION OF STATISTICAL RESULTS:**

Statistical Method: Visual interpretation and Williams' test

EC_{50}: >1.2 mg ai/L 95% C.I.: N/A
Probit Slope: N/A NOEC: 0.12 mg ai/L

14. **REVIEWER'S COMMENTS:** This study is scientifically sound and fulfills the guideline requirements for an aquatic plant toxicity test. The 14-day EC_{50} and NOEC for *L. gibba* exposed to BAS 125 W were >1.2 and 0.12 mg ai/L, respectively. The study is categorized as **Core.**

Lemna frond number
File: lem Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	Control	3	861.000	861.000	861.000
2	0.074 ppm ai	3	835.333	835.333	835.333
3	0.12 ppm ai	3	806.333	806.333	806.333
4	0.29 ppm ai	3	728.333	728.333	728.333
5	0.57 ppm ai	3	713.667	713.667	713.667
6	1.2 ppm ai	3	587.667	587.667	587.667

Lemna frond number
File: lem Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
Control	861.000				
0.074 ppm ai	835.333	0.536		1.78	k= 1, v=12
0.12 ppm ai	806.333	1.141		1.87	k= 2, v=12
0.29 ppm ai	728.333	2.769	*	1.90	k= 3, v=12
0.57 ppm ai	713.667	3.075	*	1.92	k= 4, v=12
1.2 ppm ai	587.667	5.706	*	1.93	k= 5, v=12

s = 58.674
Note: df used for table values are approximate when v > 20.